

CLAIMS

1 1. A data recording and reproducing apparatus
2 comprising:
3 a random-accessible recording device for storing
4 data;
5 an input path for transferring input data to said
6 recording device;
7 an input buffer disposed on said input path for
8 temporarily storing said input data;
9 an output path for transferring output data stored
10 in said recording device, said output path being separate
11 from said input path;
12 an output buffer for temporarily storing the output
13 data transferred through said output path; and
14 a controller for simultaneously storing said input
15 data into said input buffer and transferring said output
16 data from said output buffer, in parallel with writing
17 from said input buffer to said recording device or
18 reading from said recording device to said output buffer.

1 2. The data recording and reproducing apparatus
2 according to claim 1, wherein said controller is
3 positioned between said input and output buffers and said
4 recording device and performing said storing, said
5 transferring, said writing, and said reading, in response
6 to commands from the outside.

1 3. The data recording and reproducing apparatus
2 according to claim 2, wherein a path used for command
3 input and status output is connected to said controller,
4 separately from said input path and said output path.

1 4. The data recording and reproducing apparatus
2 according to any one of claims 1, 2 and 3, wherein each
3 of said input buffer and said output buffer has a first
4 memory area and a second memory area, and $t_1 + t_2 > T_1$ and
5 $t_1 + t_2 > T_2$ are satisfied where t_1 is a time required for
6 writing data into said recording device the amount of
7 which is sufficient to fill the first or second memory
8 area of said input buffer, T_1 is a time required for
9 filling the first or second memory area of said input
10 buffer with data, t_2 is a time required for reading out
11 data from said recording device the amount of which is
12 sufficient to fill the first or second memory area of
13 said output buffer, and T_2 is a time required for
14 completely outputting the data filled in the first or
15 second memory area of said output buffer.

1 5. A method for recording and reproducing video data
2 in which the video data is recorded in a
3 random-accessible recording device having separate input
4 and output buffers and the video data recorded in said
5 recording device is reproduced, said method comprising
6 the steps of:

7 storing the video data from the outside into said
8 input buffer;

9 writing the video data stored in said input buffer
10 to said recording device;

11 reading out the video data recorded in said
12 recording device to said output buffer; and

13 transferring the video data read out to said output
14 buffer to the outside simultaneously with said storing
15 step.

16 6. The method according to claim 5, wherein each of
17 said input buffer and said output buffer has a first
18 memory area and a second memory area, and $t_1 + t_2 > T_1$ and
19 $t_1 + t_2 > T_2$ are satisfied where t_1 is a time required for
20 writing data into said recording device the amount of
21 which is sufficient to fill the first or second memory
22 area of said input buffer, T_1 is a time required for
23 filling the first or second memory area of said input
24 buffer with data, t_2 is a time required for reading out
25 data from said recording device the amount of which is
26 sufficient to fill the first or second memory area of
27 said output buffer, and T_2 is a time required for
28 completely outputting the data filled in the first or
29 second memory area of said output buffer.

1 7. A disk drive unit comprising:
2 a hard disk for storing data;
3 an input path for transferring input data to said
4 hard disk;
5 an output path for outputting data stored in said
6 hard disk, said output path being separate from said
7 input path; and
8 a file system disposed between said input and output
9 paths and said hard disk for managing data stored in said
10 hard disk.

11 8. The disk drive unit according to claim 7, wherein
12 an input buffer is disposed on said input path, an output
13 buffer is disposed on said output path, and a controller
14 for controlling said input buffer and said output buffer
15 is provided between said input and output buffers and
16 said hard disk.

17 9. The disk drive unit according to claim 8, wherein
18 said file system is built in said controller.

19 10. The disk drive unit according to claim 9,
20 wherein said controller stores data into said input
21 buffer and transfers data from said output buffer
22 simultaneously, in parallel with writing from said input
23 buffer to said hard disk or reading from said hard disk
24 to said output buffer.

25 11. The disk drive unit according to claim 10,
26 wherein each of said input buffer and said output buffer
27 has a first memory area and a second memory area, and t_1
28 + $t_2 > T_1$ and $t_1 + t_2 > T_2$ are satisfied where t_1 is a time

required for writing data into said hard disk the amount of which is sufficient to fill the first or second memory area of said input buffer, T_1 is a time required for filling the first or second memory area of said input buffer with data, t_2 is a time required for reading out data from said hard disk the amount of which is sufficient to fill the first or second memory area of said output buffer, and T_2 is a time required for completely outputting the data filled in the first or second memory area of said output buffer.

12. A control unit for a data recording and reproducing apparatus comprising:

- an input buffer for temporarily storing data to be stored in a random-accessible recording device;
- an output buffer for temporarily storing data from said recording device to transfer the data; and
- a controller for controlling data storage and output for said input buffer and said output buffer and having a file system for managing data stored in said recording device.

1. The first group of people who are interested in the study of the history of the United States are the people who are interested in the history of the United States.